

CONTRIBUTIONS TO THE STUDIES
IN THE FLORA OF THAILAND

I. The Synnematous Fungi-with two new species¹

by

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(with 8 plates)

In a preliminary study of the microfungal flora of the dry-evergreen forest of Sakaerat (Amphoe Pak Thong Chai, Changwat Nakhon Ratchasima), many interesting fungi were collected and examined.

An account of five genera, including two new species of synnematous fungi, is presented in this series in an initial attempt to compile information concerning the flora of microfungi of Thailand. Specimens described and illustrated in this paper, unless indicated, have been deposited with the Center for Thai National Reference Collections, Bangkhen, Bangkok, Thailand.

Drumopama monosetum Weilbacher, sp. nov. Pls. XXIX, XXX.

Synnemata composita ex hyphis simplicibus, brunneis, septatis et circumdantibus structuram fertilem atratam, simplicem, rigidam, erectam vel curvam, setaceam et extendentem ad 510 μ in longitudinem et ad 10 μ in latitudinem; conidiophora simplicia, septata, libera in media parte structurae fertilis evadantia; conidia singula, hyalina, unicellularia, limoniformia, 9-13 \times 7-9 μ , arida.

Synnemata composed of unbranched, brown, septate hyphae which surround a dark colored, unbranched, rigid, erect or sometimes curved seta-like fertile structure which extends up to 510 μ long, 10 μ diam. at the widest part; conidiophores unbranched, septate, becoming loose in the middle part of the fertile structure; conidia borne singly, hyaline, 1-celled, lemonshaped, 9-13 \times 7-9 μ , dry.

- 1) This study is part of an ecosystem study of the dry-evergreen forest at Sakaerat Experimental Station undertaken by the Applied Scientific Research Corporation of Thailand in collaboration with the U.S. Army Natick Laboratories under the sponsorship of the Advanced Research Projects Agency, U.S. Department of Defense.
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Type specimen: On decaying leaves of *Saccharum arundinaceum* (*Graminae*). Sakaerat Experimental Station, Amphoe Pak Thong Chai, Changwat Nakhon Ratchasima, 21 June 1967, BFW No. 131-1. Ibid, 19 December 1967, BFW No. 515-5. Co-type specimens of *D. monosetum* have been deposited in the personal collection of Dr. Emory G. Simmons, U.S. Army Natick Laboratories, Natick, Mass., U.S.A.

According to Ainsworth (1961) and Morris (1963), only one species, *Drumopama girisa* Subramanian (1957) from India is known for this genus. The Thailand fungus, also collected on decaying leaves of a species of *Graminae*, is distinguished from *D. girisa* in having a seta-like rigid element which is darker throughout than most of the surrounding hyphae (Pls. XXIX Fig. 1).

Negeriella thailandensis Weilbacher, sp. nov. Pls. XXXI & XXXII.

Synnemata composita ex hyphis simplicibus, atratis, compactis et septatis, ad 500 μ longa, ad 60 μ lata ad basem, et ad 40 μ paulo infra regionem sporiferentem; conidia fusca, cum apicibus rotundis vel aculeatis, et basibus truncatis, glabrotunicata, labentia ad 12 septa, aliquando parce colligata prope cellulas terminales, 28-40 \times 6 μ , sicca.

Synnemata composed of unbranched, dark, compacted septate hyphae extending up to 500 μ long, 60 μ wide at the base, 40 μ wide just below the sporiferous region; conidia dark, apices rounded or pointed, bases truncate, smooth-walled, up to 12 septa, sometimes slightly constricted near the terminal cells, 28-40 \times 6 μ , dry.

Type specimen: On wet bark of tree branch in forest stream crossing. Sakaerat Experimental Station, Amphoe Pak Thong Chai, Changwat Nakhon Ratchasima, 25 September 1968, BFW 756-9. The holotype specimen of *N. thailandensis* has been deposited in the personal collection of Dr. Emory G. Simmons, U.S. Army Natick Laboratories, Natick, Mass., U.S.A.

Negeriella thailandensis fits well within the species description of *N. chilensis* Hennings (1897) and *N. panamensis* Morris (1967) but differs mainly in having smaller conidia which are sometimes constricted near the terminal portion (Pls. XXXII Fig. 1).

Stevensomyces palmae (Stevens & King) Morris & Finley, Mycologia 57: 483-485. 1965. Pls. XXXII, XXXIII & XXXIV.

Synnemata hyaline, unbranched, up to 2 mm. high, 150 μ wide at the base, 180-480 μ across the spore-bearing region; stipe composed of hyaline, septate hyphae 2-3 μ diam.; conidiophores unbranched, septate, becoming inflated up to 4 μ at the apical portion; conidia hyaline, 1-celled, globose, oval or oblong, up to 6 μ diam., dry.

Specimens examined: On decaying inflorescence of *Cocos nucifera* (Palmaceae). Amphoe Pak Thong Chai, Changwat Nakhon Ratchasima, 14 April 1967, BFW No. 5-8; Kasetsart University Campus, Amphoe Bangkhen, Changwat Phranakorn, 15 September 1967, BFW No. 352-1; Ibid, 12 November 1968, BFW No. 798-1; Amphoe Muang Samut Sakhon, Changwat Samut Sakhon, 12 December 1968 BFW No. 884-1; Amphoe Sattahip, Changwat Chon Buri, 1 January, 1969, BFW No. 907-1; Amphoe Phra Kanong, Changwat Phranakorn, 10 November 1969, BFW No. 943-1.

Stevensomyces palmae was proposed in 1965 by E.F. Morris and D. E. Finley for a stilbellaceous fungus previously identified by Stevens and King (1927) as *Isaria palmae*. Three collections on palm inflorescence have so far been reported—all from the Panama Canal Zone. The fungus from Thailand is described from six collections made by the writer during April 1967 to November 1969. It has been observed to be restricted to the decaying palm inflorescence only. It has not been observed on other plant substrates. Plates XXXII fig. 2 and XXXIII fig. 2 show the habit of the fungus on palm inflorescence and the mode of conidial production on natural substrate. In culture, Plates XXXIII fig. 1 & XXXIV fig. 1., the fungus produced synnemata which were somewhat smaller and less compact than in nature and bore close resemblance to some species of the form-family *Tuberulariaceae*, of the Fungi Imperfecti.

Tretopileus sphaerophorus (Berk. & Curt.) Hughes & Deighton, African Fungi. I. Comm. Mycol. Inst. Papers No. 78, pp. 2-4. 1960.

Pls. XXXIV & XXXV.

Synnemata dark, stout, up to 450 μ high, 50-70 μ diam. at the base, 30 μ diam. along the middle and apical portion of the stipe;

stipe composed of dark brown, septate, straight or curved, closely united hyphae bearing up to 8 ring-like structures along the stipe length; conidia globose or subglobose, slightly sinuous from upper view, obconic from side view, 80-120 μ diam., up to 30 μ high, many-celled, borne singly at the apex of the stipe.

Specimens examined: On decaying twigs of *Eupatorium odoratum* (*Compositae*). Sakaerat Experimental Station, Amphoe Pak Thong Chai, Changwat Nakhon Ratchasima, 22 June 1967, BFW No. 130-1; On decaying inflorescence of *Cocos nucifera* (*Palmaceae*). Kasetsart University Campus, Amphoe Bangkhen, Changwat Phrakan-korn, 15 September 1967, BFW No. 352-3; Ibid, 12 November 1968, BFW No. 798-10.

This curious fungus has been reported from Cuba by Berkeley and Curtis (1869), from Florida, U.S.A. by B.O. Dodge (1946), from Sierra Leone, Africa by F. C. Deighton (1960), from Indonesia (by E. G. Simmons through personal communications) and presently from Thailand.

Virgatospora echinofibrosa Finley, Mycologia 59: 538-541. 1967.

Pls. XXXVI Figs. 1-2

Synnemata dark, erect or curved, unbranched, up to 730 μ high, 140 μ diam. across the base, 70 μ wide just below the sporiferous portion. Sporiferous region up to 180 μ diam.; conidiophores dark, septate; conidia dark olivaceous green, rough-walled, fusoid with distinct hilum at the point of attachment, nipple-like at distal end, mostly 3-septate, 30-34 \times 11-12 μ , dry.

Specimen examined: On dead twig of unidentified tree. Kasetsart University Forestry Camp, Amphoe Pak Thong Chai, Changwat Nakhon Ratchasima, 14 April 1967, BFW No. 9-7.

This fungus is quite interesting besides being rare. The Thailand collection comprises the second known collection of the fungus. The only known species in the genus, *V. echinofibrosa* Finley was first collected on dead twigs from the Panama Canal Zone in 1964.



Fig. 1. *Drumopama monosetum*. Synnema. Microphoto.,
 $\times 150$.

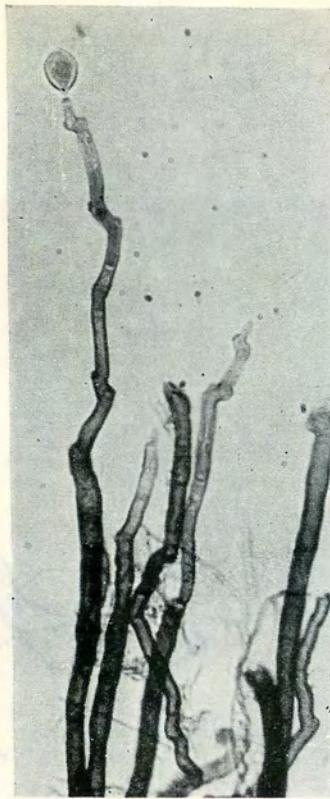


Fig. 2. *Drumopama monosotum*. Sporogenous elements
with an attached conidium. Microphoto.,
 $\times 600$.

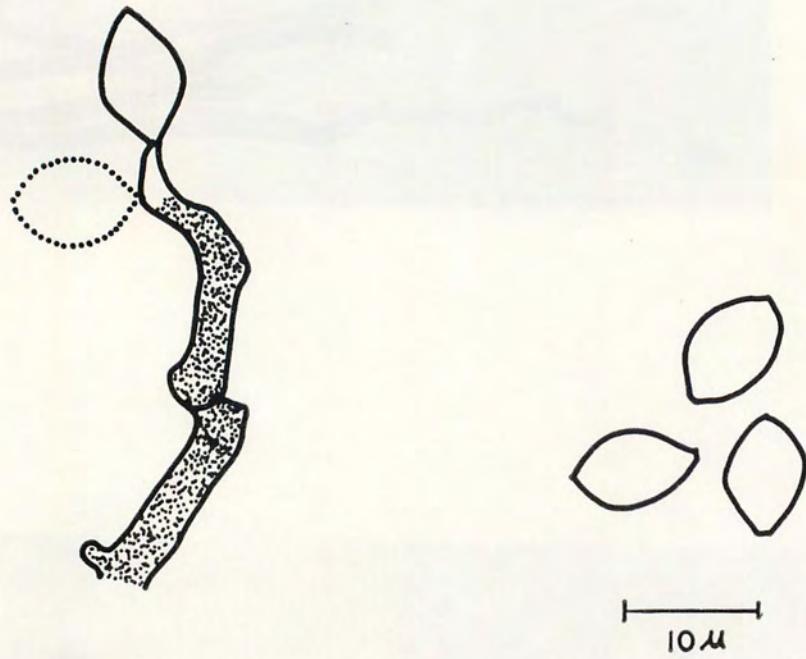


Fig. 1. *Drumopama monosetum*. Conidiophore and conidia. Camera lucida drawing, $\times 600$.

Fig. 2. *Drumopama monosetum*. Conidia. Camera lucida drawing, $\times 600$.



Fig. 1. *Negeriella thailandensis*. Synnema. Microphoto.,
 $\times 150$.



Fig. 2. *Negeriella thailandensis*. Developmental
stages of conidia. Camera lucida draw-
ing, $\times 600$.

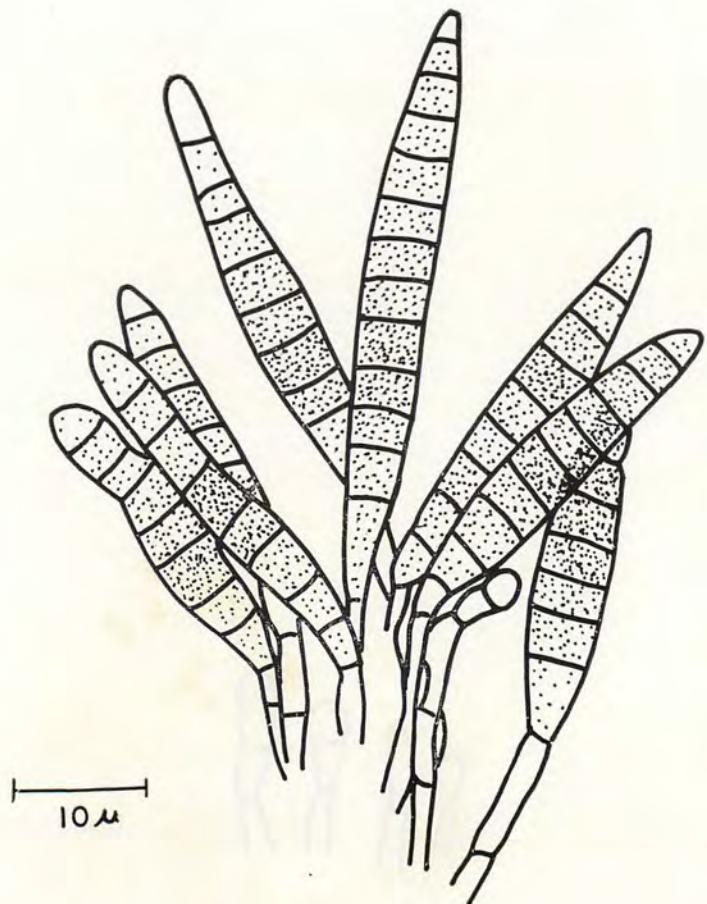


Fig. 1. *Negeriella thailandensis*. Section of sporiferous region showing conidia and constriction near apical portion of conidia. Camera lucida drawing, $\times 600$.



Fig. 2. *Stevensomyces palmae*. Habit of synnemata. Microphoto., $\times 112$.

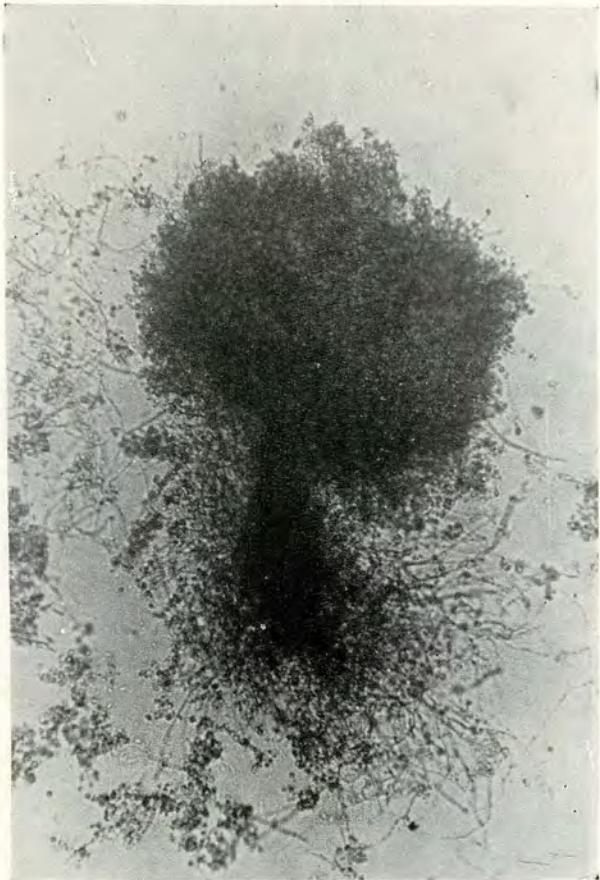


Fig. 1. *Stevensomyces palmae*. Synnema on culture media (hay infusion agar). Microphoto., $\times 150$.

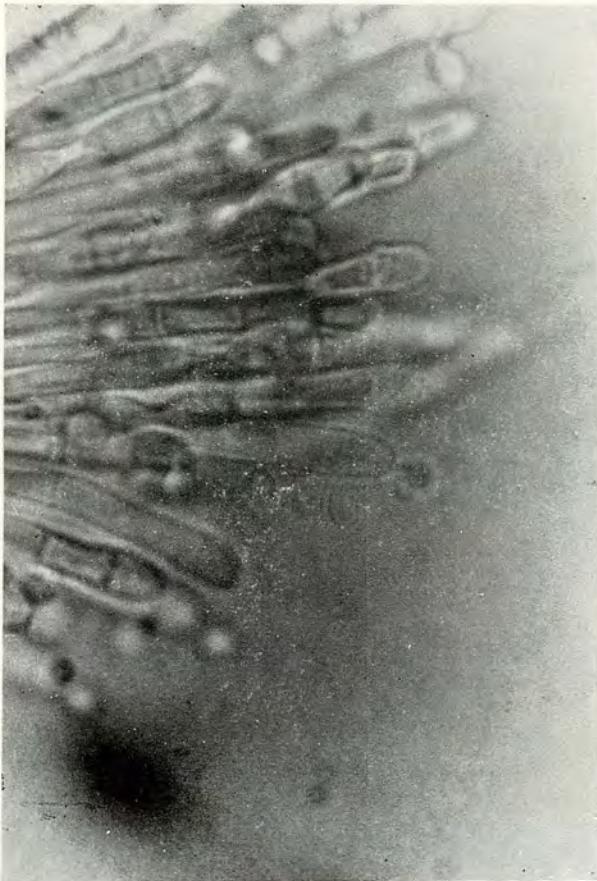


Fig. 2. *Stevensomyces palmae*. Conidiophores and conidia on natural substrate. Microphoto., $\times 1500$.



Fig. 1. *Stevensomyces palmae*. Conidiophores and conidia on culture media. Microphoto., $\times 1500$.



Fig. 2. *Tretopileus sphaerophorus*. Synnemata, conidia (gemmae) and ringlike structures on stipes. Microphoto., $\times 150$.

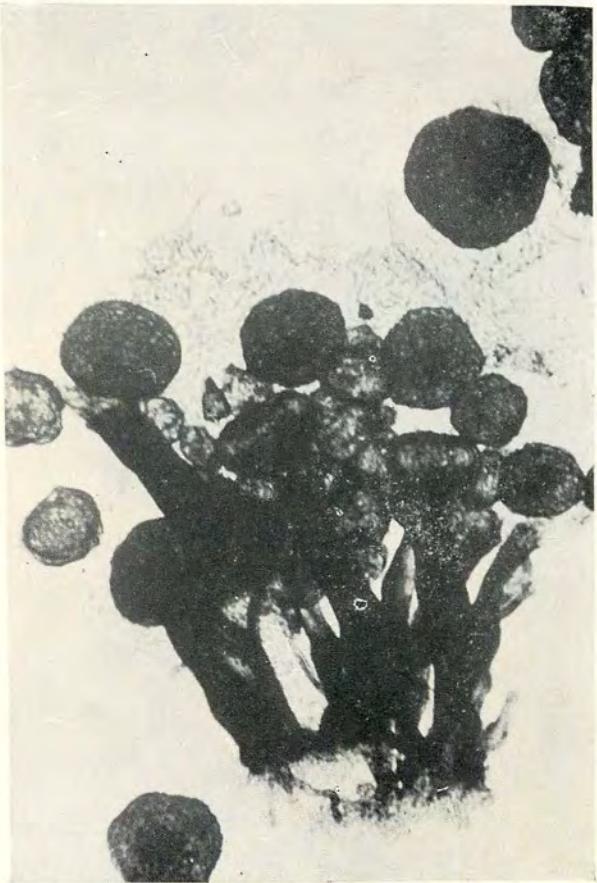


Fig. 1. *Tretopileus sphaerophorus*. Cluster of synnemata on hay infusion agar. Microphoto., $\times 150$.



Fig. 2. *Tretopileus sphaerophorus*. Cluster of synnemata on potato carrot agar. Microphoto., $\times 150$.

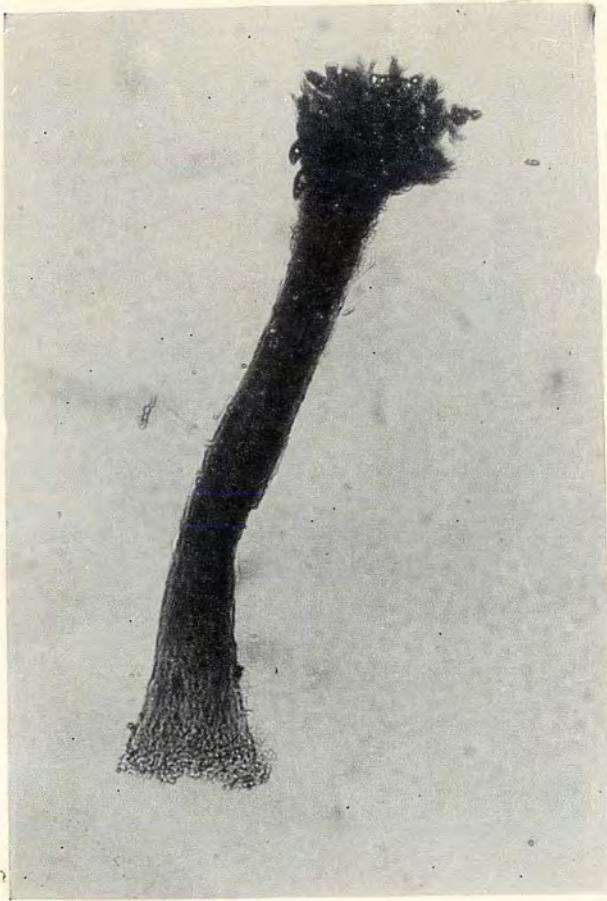


Fig. 1. *Virgatospora echinofibrosa*. Synnema. Microphoto., $\times 150$.



Fig. 2. *Virgatospora echinofibrosa*. Section of sporiferous region showing nipple-like terminal portion of conidia. Microphoto., $\times 600$.

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